

V-Soft Communications Population Report

WSBTV (02Z) Atlanta, GA

TV Incoming Interference Study

Signal Resolution: 2 km

Consider NTSC Taboo: Yes

KWX error points are considered to be interference free coverage.

of radials computed for contours: 72

Contours calculated using 8 radial HAAT.

LR Profile Spacing Increment: 1.0 km

Interference considered within the reference station's noise limited contour.

Using NTSC lptv/translators D/U rules.

Threshold for reception: 47.0

Study Date: 1/24/01

Percentages calculated using a baseline population of 3,600,621.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
WTWC-D.A (02)	4820	12032	0.334	266.20
WRBL (03Z)	6707	15972	0.444	377.01
WKRNTV (02-)	26855	66417	1.845	1170.35
WSJK (02+)	21030	51639	1.434	886.97
WRCBTV (03+)	3336	7981	0.222	164.99
WCES-DT PFRM 2)	890	2090	0.058	134.35

Masking Summary:

Call Letters	Total Interference Population	%	Unique Interference Population	%
WTWC-D.A (02)	12032	0.334	4232	0.118
WRBL (03Z)	15972	0.444	8590	0.239
WKRNTV (02-)	66417	1.845	30144	0.837
WSJK (02+)	51639	1.434	15004	0.417
WRCBTV (03+)	7981	0.222	89	0.002
WCES-DT PFRM(2)	2090	0.058	1154	0.032

Stations considered which do not cause interference:

W02BV (02Z)

WTWCTV-D.R (2)

KESSLER & GEHMAN

TELECOMMUNICATIONS CONSULTING ENGINEERS

507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

WCES-DT CHANNEL 2

WRENS, GA

20010124

EXHIBIT 20A

Call Letters	City	State	Dist	Bear
W02BV (02Z)	Birmingham	AL	231.7	262.6
WTWC-D.A (02)	Tallahassee	FL	343.8	173.8
WRBL (03Z)	Columbus	GA	164.5	193.8
WKRNTV (02-)	Nashville	TN	339.1	319.0
WSJK (02+)	Sneedville	TN	309.6	20.0
WRCBTV (03+)	Chattanooga	TN	178.0	330.8
WTWCTV-D.R (2)	TALLAHASSEE	FL	352.5	178.0
WCES-DT PFRM(2)	Wrens	GA	200.8	105.6

Totals for WSBTV (02Z)

Calculation Area Population:	3,600,320	(35014.6 sq. km)
Not Affected by Terrain Loss:	3,535,217	(32406.3 sq. km)
Total NTSC Interference:	98,053	(1995.3 sq. km)
DTV Only Interference:	5,804	(277.8 sq. km)
Total DTV Interference:	13,704	(384.2 sq. km)
Interfered Population:	103,857	(2273.2 sq. km)
Interference Free:	3,431,360	(30133.1 sq. km)

Percent Interference: 2.88

Terrain Blocked Population:	65,103	(2608.3 sq. km)
Contour Area Population:	3,600,621		

DTV PFRM APPLICATION AND VHF
INTERFERENCE STUDIES FOR THE DIGITAL
TELEVISION BROADCAST STATION
WVAN-DT TO OPERATE ON
DTV CHANNEL 13 WITH AN ERP OF
10 KW AT AN ANTENNA HEIGHT
RADIATION CENTER OF 292.8 METERS
ABOVE AVERAGE TERRAIN
SAVANNAH, GEORGIA
(GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION)

KESSLER & GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20010130

Prepared by William T. Godfrey

KG&A

507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH THE GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION'S (GPTC) DTV APPLICATION FOR A CONSTRUCTION PERMIT IN SUPPORT OF THE WVAN-DT PETITION FOR RULE MAKING WHICH SEEKS AUTHORIZATION TO AMEND THE DTV TABLE OF ALLOTMENTS IN ORDER TO SUBSTITUTE THE PROPOSED DTV VHF CHANNEL 13 FOR THE ALLOTTED DTV UHF CHANNEL 46 AT THE LICENSED SITE LOCATED IN PEMBROKE, GEORGIA.

The firm Kessler and Gehman Associates, Inc., has been retained by the Georgia Public Telecommunications Commission (GPTC), Atlanta, Georgia in order to prepare engineering studies and the engineering portion of a digital television (DTV) application for a construction permit in support of the WVAN-DT Petition for Rule Making (PFRM) which respectfully requests and seeks authorization for an amendment of the DTV Table of Allotments by substituting the proposed DTV VHF Channel 13 for the allotted DTV UHF Channel 46 at the licensed site located in Pembroke, GA.

Discussion

The GPTC is the licensee of nine NTSC broadcast stations and has been assigned a paired DTV channel for each of the nine stations. The enclosed WVAN-DT application for the GPTC is just one of six PFRM applications requesting a change from its assigned UHF channel to a desired VHF channel. Kessler and Gehman Associates, Inc. initially conducted a detailed spacing study and determined that two of the nine GPTC stations presently would not be able to convert to VHF without causing above *de minimis*¹ interference to one or more applicable surrounding station(s). Of the nine DTV channels allotted to the GPTC, one station was assigned a VHF channel. Therefore, the GPTC is requesting a "Fleet VHF Conversion" of six of its nine broadcast stations in order to utilize improved signal coverage, heavily reduce support structure upgrade expenses, save on equipment and operational costs and continue digital VHF operation on the proposed channels after the DTV transition has ceased.

Authorization of the "Fleet VHF conversion" will equip the GPTC with seven VHF stations and will serve the public interest significantly with huge savings in tax dollars ranging from the substantial amount of money saved during the DTV purchasing/building phase to the magnitude of electrical savings that low power VHF transmitters offer over high power UHF transmitters. Conversion of the two remaining UHF channels to VHF shall be pursued after the DTV transition when spectrum becomes available so that the GPTC can simulcast efficiently on all nine VHF stations to the entire state of Georgia and beyond.

The objective of the enclosed DTV PFRM application is to amend the DTV Table of Allotments as follows: (1) substitute DTV Channel 13 for assigned DTV Channel 46; (2) change effective radiated power (ERP) from assigned 958.3kW to 10kW using a directional antenna (cardioid) with the main lobe oriented toward N115°E; and (3) change the antenna radiation center (R/C) height above average terrain (HAAT) from the assigned 320.0 meters to 292.8 meters.

¹ *De minimis* interference is defined as interference to such stations affecting less than two percent of the population they serve. Where a station is receiving interference to between eight and ten percent of the population it would otherwise serve, additional interference is considered *de minimis* if it does not cause interference to the station to exceed the ten-percent threshold.

The GPTC is licensed to operate WVAN-TV on VHF, NTSC Channel 9(-) with an ERP of 316kW at an antenna height R/C of 320.0 meters AAT using a nondirectional antenna. The assigned principal community for WVAN is Savannah, Georgia and the file number for WVAN-TV is BLET-85.

According to the initial allotment plan and reference coordinates (DTV Table of Allotments) set forth in Appendix B of the *Sixth Report and Order* in MM Docket 87-268, FCC 97-115, adopted April 3, 1997, WVAN is allotted UHF, DTV Channel 46 at an antenna height R/C of 320.0 meters AAT and an ERP of 958.3kW in order to replicate its licensed VHF, Channel 9 Grade B Contour.

The GPTC has been granted a construction permit for DTV Channel 46 (file number BPEDT-200000425AAT), which authorizes WVAN to operate with an ERP of 917.5kW at an antenna height radiation of 299.8 meters AAT using a nondirectional antenna. Specifically, the GPTC requests authorization to substitute WVAN-DT Channel 13 in lieu of the WVAN-DT Channel 46 construction permit, and to take any other steps necessary to enable WVAN to construct and ultimately operate its digital facilities on Channel 13.

Transmitter

It is proposed to side-mount a Dielectric model THV-13A13-R C170 circularly polarized, directional (cardioid oriented at N115E°), VHF, DTV antenna on the existing WVAN-TV support structure owned by the GPTC. The tower is registered with the FCC and has a registration number of 1018799. The support structure is located 0.8 miles NNE of Pembroke, GA. The antenna height radiation center is 288.9 meters above ground level (AGL). The antenna's highest point will extend to 299.0 meters AGL and the overall height of the structure will extend to 331.0 meters AGL as depicted in Exhibit 3's elevation view of the support structure

Interference Studies

The enclosed interference studies were computed using a Pentium Pro, 300 MHz, 128-megabyte, Pentium II processor. The calculations were performed using V-Soft Communication's Probe II, professional signal propagation software and interference studies program, which complies with the FCC mandated application-processing guidelines for digital television. This software is in accordance with the standards established in the FCC Public Notice #3060-0841 pertaining to DTV studies and DTV application preparation dated August 10, 1998.

Initial spacing studies, which considered DTV allotments (allot), DTV/NTSC licenses (lic), DTV/NTSC construction permits (cp), DTV/NTSC applications (app) and Class A/Class A-eligible low power television (LPTV) stations in the applicable areas surrounding Pembroke, GA revealed that VHF Channel 13 was a possible option for the GPTC station. After the spacing studies were completed additional studies were conducted to verify that the proposed station met the principal community coverage requirements of §73.625(a) in the Federal Communications Commission's (FCC) rules. Exhibit 11 depicts the proposed WVAN-DT F(50,90) 36dBuV/m noise limited contour and verifies that the proposed station's noise limited contour fully encompasses the assigned principal community of Savannah, GA. After it was determined that the principal community coverage requirement was met, we performed detailed interference studies on all applicable surrounding stations using the terrain dependent Longley-Rice, point-to-point propagation algorithm detailed in the FCC's Office of Engineering and Technology Bulletin Number 69 (OET 69).

The initial interference studies predicted that the proposed WVAN-DT may cause interference to the stations listed below (Exhibit 12) and therefore, are the stations we performed detailed interference studies on to verify that all interference remains within the *de minimis* standard:

- W13CC (Class A Eligible)
- WTLV-DT (ALLOT)
- WRDW-TV (LIC)
- WTLV-DT (APP)
- WBTW-TV (LIC)
- WTLV-DT (CP)
- WMAZ-TV (LIC)

Exhibit 12 is a pictorial view of all applicable surrounding stations that are predicted to receive interference from WVAN-DT using the proposed azimuth pattern with an ERP of 10kW at an antenna R/C HAAT of 292.8 meters. Exhibit 12A is a tabular exhibit which identifies the potential stations that may receive interference from the proposed WVAN-DT, including Class A and Class A-eligible LPTV stations. Since this study did not take masking into account, each station was studied in detail in order to determine the exact amount of *unique interference*² caused to each station from the proposed WVAN-DT.

NOTE: Starting from Exhibit 12, each pictorial exhibit will also be followed by a tabulation exhibit. For example, Exhibit 15 will be a pictorial exhibit and Exhibit 15A will be a tabulation exhibit.

Exhibits 13 and 14 are studies showing interference from all stations to the W13CC (Class A Eligible) LPTV station without and with WVAN-DT respectively. Exhibit 13 shows that without WVAN-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 101,188. Exhibit 14 shows that with WVAN-DT, populations of 101,188 people are receiving DTV only interference and the interference free population is zero (0.0). Therefore, the proposed WVAN-DT causes 100% interference to the W13CC LPTV station. The W13CC station has been classified by the FCC as a Class A eligible station and a Class A application has been submitted for the LPTV station. Upon a fair amount of investigation it is believed that the W13CC LPTV station is not in compliance with the statutory qualifications criteria for Class A status and therefore should not be eligible for Class A status or Class A protection. W13CC Channel 13 is a MTV-2 subscription based LPTV station, which does not appear to be broadcasting the minimum three hours per week of programming produced within its market area. Based on this information, the W13CC Channel 13 station should not be anything more than a secondary LPTV station, which should not be afforded protection from a full service DTV station. Therefore, the proposed WVAN-DT Channel 13 would not cause unacceptable interference to the W13CC LPTV station based on the fact that the W13CC station would not be Class A eligible and would only be a secondary LPTV station that would not receive interference protection from full service DTV stations.

Exhibits 15 and 16 are studies showing interference from all stations to the WTLV-DT (APP) without and with WVAN-DT respectively. Exhibit 15 shows that without WVAN-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 1,130,654. Exhibit 16 shows that with WVAN-DT, populations of 22,031 people are receiving DTV only interference and the interference free population is 1,108,623. Therefore, WVAN-DT causes [1,130,654 (IX free without WVAN-DT) – 1,108,623 (IX free with WVAN-DT) = 22,031] interference to a total of 22,031 people. Exhibits 15 and 16 calculated the WTLV-DT (APP) baseline population to be 1,155,221. Therefore, the total amount of unique interference caused by WVAN-DT is [22,031/1,155,221] 1.9% ≤ 2.0% and thus,

² Unique interference is defined as the predicted interference a DTV station would cause beyond the amount of interference "built into" the DTV allotment table.

all requirements under the definition of *de minimis* have been met. Exhibit 16 concludes that the total interference caused to WTLV-DT from all stations including WVAN-DT is $[22,031/1,155,221]$ $1.9\% \leq 10\%$ and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 17 and 18 are studies showing interference from all stations to the WTLV-DT (CP) station without and with WVAN-DT respectively. Exhibit 18 shows that without WVAN-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 1,086,485. Exhibit 18 shows that with WVAN-DT, populations of 2,903 people are receiving DTV only interference and the interference free population is 1,083,582. Therefore, WVAN-DT causes $[1,086,485 \text{ (IX free without WVAN-DT)} - 1,083,582 \text{ (IX free with WVAN-DT)} = 2,903]$ interference to a total of 2,903 people. Exhibits 17 and 18 calculated the WTLV-DT (CP) baseline population to be 1,094,056. Therefore, the total amount of unique interference caused by WVAN-DT is $[2,903/1,094,056]$ $0.27\% \leq 2.0\%$ and thus, all requirements under the definition of *de minimis* have been met. Exhibit 18 concludes that the total interference caused to WTLV-DT from all stations including WVAN-DT is $[2,903/1,094,056]$ $0.27\% \leq 10\%$ and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 19 and 20 are studies showing interference from all stations to the WTLV-DT (ALLOT) station without and with WVAN-DT respectively. Exhibit 19 shows that without WVAN-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 1,084,626. Exhibit 20 shows that with WVAN-DT, populations of 1,971 people are receiving DTV only interference and the interference free population is 1,082,655. Therefore, WVAN-DT causes $[1,084,626 \text{ (IX free without WVAN-DT)} - 1,082,655 \text{ (IX free with WVAN-DT)} = 1,971]$ interference to a total of 1,971 people. Exhibits 19 and 20 calculated the WTLV-DT (ALLOT) baseline population to be 1,092,864. Therefore, the total amount of unique interference caused by WVAN-DT is $[1,971/1,092,864]$ $0.18\% \leq 2.0\%$ and thus, all requirements under the definition of *de minimis* have been met. Exhibit 20 concludes that the total interference caused to WTLV-DT (ALLOT) from all stations including WVAN-DT is $[1,971/1,092,864]$ $0.18\% \leq 10\%$ and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 21 and 22 are studies showing interference from all stations to the WBTW-TV (LIC) station without and with WVAN-DT respectively. Exhibit 21 shows that without WVAN-DT, populations of zero (0.0) people are receiving DTV only interference and the interference free population is 1,297,062. Exhibit 22 shows that with WVAN-DT, populations of 279 people are receiving DTV only interference and the interference free population is 1,296,783. Therefore, WVAN-DT causes $[1,297,062 \text{ (IX free without WVAN-DT)} - 1,296,783 \text{ (IX free with WVAN-DT)} = 279]$ interference to a total of 279 people. Exhibits 21 and 22 calculated the WBTW-TV baseline population to be 1,461,928. Therefore, the total amount of unique interference caused by WVAN-DT is $[279/1,461,928]$ $0.019\% \leq 2.0\%$ and thus, all requirements under the definition of *de minimis* have been met. Exhibit 22 concludes that the total interference caused to WBTW-TV from all stations including WVAN-DT is $[279/1,461,928]$ $0.019\% \leq 10\%$ and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

Exhibits 23 and 24 are studies showing interference from all stations to the WMAZ-TV (LIC) station without and with WVAN-DT respectively. Exhibit 23 shows that without WVAN-DT, populations of 688 people are receiving DTV only interference and the interference free population is 595,578. Exhibit 24 shows that with WVAN-DT, populations of 1,287 people are receiving DTV only interference and the interference free population is 594,979. Therefore, WVAN-DT causes $[595,578 \text{ (IX free without WVAN-DT)} - 594,979 \text{ (IX free with WVAN-DT)} = 599]$ interference to a total of 599 people. Exhibits 23 and 24 calculated the WMAZ-TV baseline population to be 595,578. Therefore, the total amount of unique interference caused by WVAN-DT is $[599/595,578]$ $0.1\% \leq 2.0\%$ and thus, all requirements under the definition of *de minimis* have been met. Exhibit 24 concludes that the total interference caused to WMAZ-TV from all stations including WVAN-DT is $[599/595,578]$ $0.1\% \leq 10\%$ and thus, all requirements under the definition of the *10% de-minimis* standard have been met.

DT) – 594,979 (IX free with WVAN-DT) = 599] interference to a total of 599 people. Exhibits 23 and 24 calculated the WMAZ-TV baseline population to be 678,143. Therefore, the total amount of unique interference caused by WVAN-DT is $[599/678,143] 0.088\% \leq 2.0\%$ and thus, all requirements under the definition of *de minimis* have been met. Exhibit 24 concludes that the total interference caused to WMAZ-TV from all stations including WVAN-DT is $[1,287/678,143] 0.19\% \leq 10\%$ and thus, all requirements under the definition of the 10% *de-minimis* standard have been met.

Exhibits 25 and 26 are studies showing interference from all stations to the WRDW-TV (LIC) station without and with WVAN-DT respectively. Exhibit 25 shows that without WVAN-DT, populations of 14,608 people are receiving DTV only interference and the interference free population is 941,118. Exhibit 26 shows that with WVAN-DT, populations of 14,608 people are receiving DTV only interference and the interference free population is still 941,118. Therefore, WVAN-DT causes $[941,118 \text{ (IX free without WVAN-DT)} - 941,118 \text{ (IX free with WVAN-DT)} = 0.0]$ interference to a total of zero (0.0) people. Exhibits 25 and 26 calculated the WRDW-TV baseline population to be 1,232,037. Therefore, the total amount of unique interference caused by WVAN-DT is $[0.0/1,232,037] 0.0\% \leq 2.0\%$ and thus, all requirements under the definition of *de minimis* have been met. Exhibit 26 concludes that the total interference caused to WRDW-TV from all stations including WVAN-DT is $[14,608/1,232,037] 1.19\% \leq 10\%$ and thus, all requirements under the definition of the 10% *de-minimis* standard have been met.

Exhibits

Exhibits 1 and 2 represent WVAN-DT's administration data, antenna and antenna structure specifications as per §V-D item 9 in the DTV Broadcasting Engineering Data portion of the application regarding directional antennas and beam tilt.

Exhibit 3 depicts the profile view of the proposed antenna on the antenna structure with all the appropriate elevations as per §V-D item 8 in the DTV Broadcasting Engineering Data portion of the application regarding supporting structures and elevations.

Exhibits 4 and 5 display the azimuth pattern and the azimuth pattern tabulation respectively.

Exhibits 6 and 7 display the elevation pattern and the elevation pattern tabulation respectively.

Exhibits 8 and 9 display the ERP/dBk pattern and tabulation respectively.

Exhibit 10 depicts the site location of the proposed WVAN-DT site on a 7.5-Minute (Series) Topographic Map as per §V-D item 17 in the DTV Broadcasting Engineering Data portion of the application regarding topographic maps.

Exhibit 11 depicts the proposed WVAN-DT coverage contour, boundaries of the principal community to be served, and the proposed transmitting location with radials every 45° as per §V-D item 18 in the DTV Broadcasting Engineering Data portion of the application regarding Sectional Aeronautical Charts.

Exhibits 12 through 26 are detailed interference studies and demographic results of WVAN-DT to all applicable stations.

Environmental Impact

The proposed construction will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The DTV transmitter, 1-5/8 inch (50-ohm) transmission line and antenna system will produce an ERP of 10kW. Assuming that the maximum lobe of radiation is oriented at the base of the tower, it will produce a power density six feet above the ground of 0.004 mW/cm^2 . This is only 0.45% of the maximum permissible exposure (MPE) authorized by the American National Standards Institute (ANSI). Since the proposed operation of WVAN-DT Channel 13 will not exceed 5.0% of the MPE limit for population/uncontrolled at any point on the ground, WVAN-DT is not considered to be a "significant contributor" to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, contributions of exposure from other sources were not accounted for in this analysis. It is safe to conclude that the emissions will be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the applicant will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. The tower will be enclosed within a fence with warning signs posted at the locked gate.

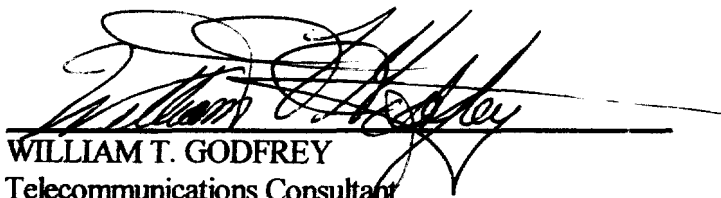
Certification

The applicant accepts full responsibility for the elimination of any objectionable interference including that caused by intermodulation to facilities in existence or authorized prior to the grant of this application.

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics and received a Commission in the Aviation Branch of the United States Army in 1993. As a Professional in the field of Telecommunications and as a Captain in the United States Army, he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.

The logo for Kessler and Gehman Associates, Inc. (KGA) features the letters "KGA" in a stylized, serif font. The letters are white and are set against a background of two horizontal lines that intersect the letters. The top line is slightly above the "K" and "A", while the bottom line is slightly below the "G" and "A".

KESSLER AND GEHMAN ASSOCIATES, INC.

A handwritten signature of William T. Godfrey in black ink. The signature is written in a cursive style and is positioned above a horizontal line. Below the line, the name "WILLIAM T. GODFREY" and the title "Telecommunications Consultant" are printed.

WILLIAM T. GODFREY
Telecommunications Consultant

19 March, 2001

**WVAN-DT
SAVANNAH, GA**

ENGINEERING SPECIFICATIONS

A. Transmitter Site:

Geographic coordinates determined by licensed surveyor:

North Latitude	32° 08' 48"
West Longitude	81° 37' 05"

Transmitter Site Address: **100 Vandiver Street, Pembroke, GA 31321 (0.8 Miles NNE of Pembroke, GA)**

B. Main Studio Site Address: 260 14th Street N.W., Atlanta, GA 30318.

C. Proposed Facility:

DTV Channel	Number	13
	Frequency	210-216 MHz

D. Antenna Height:

Height of Site Above Mean Sea Level (AMSL)	29.0 M
Overall Height of Structure Above Ground (including all appurtenances)	331.0 M
Overall Height of Structure Above Mean Sea Level (including all appurtenances)	360.0 M
Height of Site Above Average Terrain	4.9 M
Antenna Height Radiation Center (R/C) Above Ground	288.9 M
Antenna Height R/C Above Mean Sea Level	317.9 M
Average of All Non-Odd Radials	25.1 M
Antenna Height R/C Above Average Terrain	292.8 M

E. System Parameters – Horizontal Polarization:

Transmitter Power Required	0.94 kW
Maximum Power Input to Antenna	0.45 kW
Total System Loss	3.16 dB
Transmission Line Efficiency	48.3%
Maximum Antenna Gain in Beam Maximum	13.44 dB
Maximum Antenna Gain in Horizontal Plane	13.10 dB
Maximum Effective Radiated Power	10.0 dBk
In Beam Maximum	10.0 kW
Maximum Effective Radiated Power	9.66 dBk
In Horizontal Plane	9.25 kW

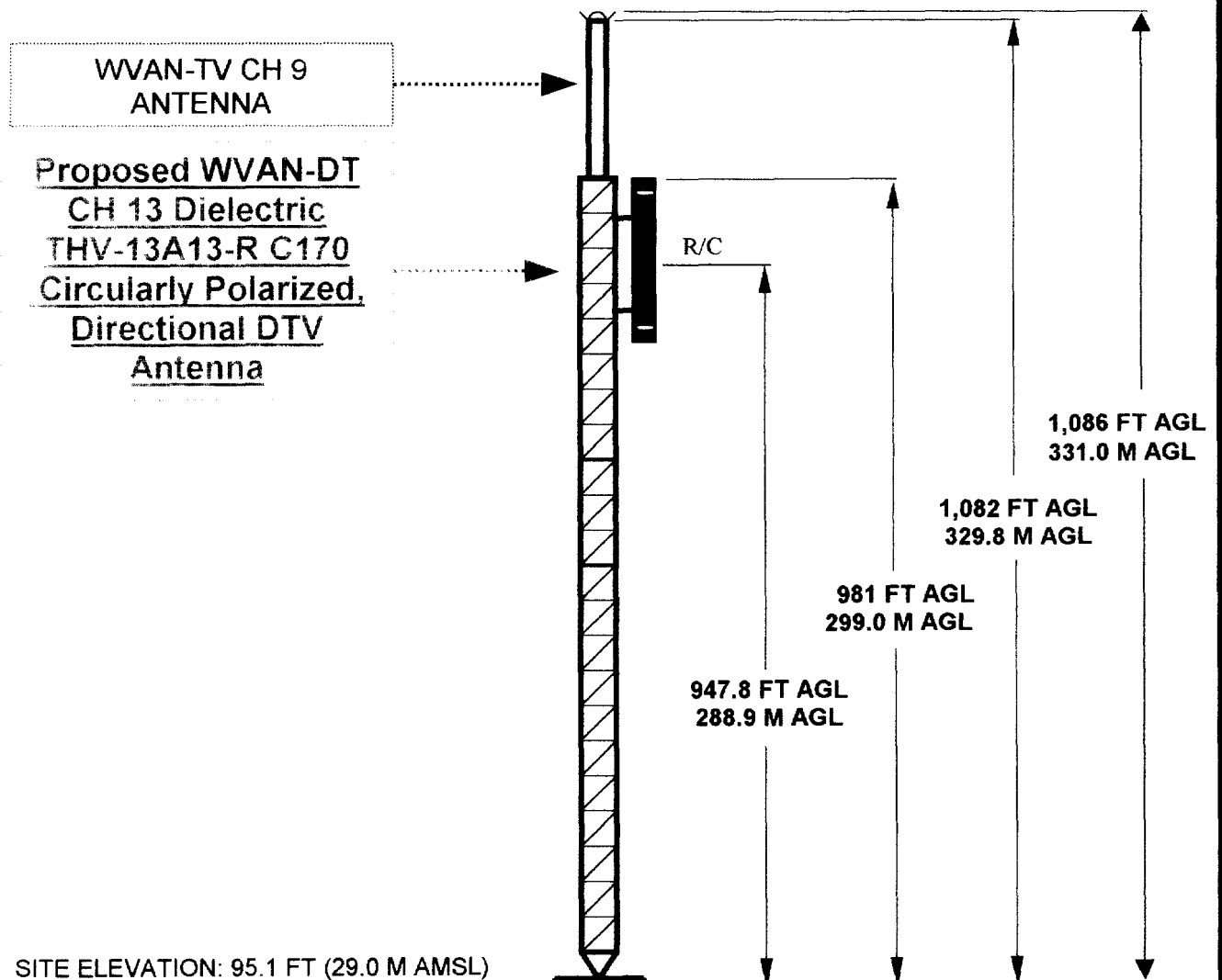
**WVAN-DT
SAVANNAH, GA**

**DATA FOR PROPOSED DTV
DIRECTIONAL TRANSMITTING ANTENNA**

- A. **Antenna:** Dielectric THV-13A13-R C170, Circularly Polarized, Directional (Cardioid)), Side-mount Antenna.
- B. **Electrical Beam Tilt:** 0.75°
- C. **Mechanical Beam Tilt:** 0.0.
- D.

<u>Maximum Power Gain</u>	<u>Horizontal Polarization</u>
Maximum:	22.1 (13.44 dB)
Horizontal:	20.4 (13.10 dB)
- E. **Length:** 66.3 feet (20.2 meters) not including appurtenances.
- F. **Average Power DTV:** 0.94kW
- G. **Null Fill:** 20.7%
- H. **Transmission Line:** 1 5/8" 50-ohm Coaxial Cable.
- I. **Transmission Line Loss:** 0.304dB/100-feet
- J. **Total Transmission Line:** 1,040 feet
- K. **Transmission Line Attenuation:** 3.16 dB

ANTENNA STRUCTURE ELEVATION VIEW



OVERALL HEIGHT AGL: 331.0 M
OVERALL HEIGHT AMSL: 360.0 M
RADIATION CENTER AGL: 288.9 M
RADIATION CENTER AMSL: 317.9 M
RADIATION CENTER HAAT: 292.8 M
AVG OF ALL NON-ODD RADIALS: 25.1 M

COORDINATES (NAD 27):

N. LATITUDE 32° 08' 48"

W. LONGITUDE 81° 37' 05"

Antenna Structure Registration Number:

1018799

NOTE: NOT TO SCALE

KESSLER & GEHMAN

TELECOMMUNICATIONS CONSULTING ENGINEERS

507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

WVAN-DT CHANNEL 13

SAVANNAH, GEORGIA

20010130

EXHIBIT 3

Dielectric

Exhibit No.
EXHIBIT 4

Date
Call Letters
Location
Customer
Antenna Type

30 Jan 2001
WVAN-DT
SAVANNAH
GPTC
THV-13A13-R C170

Channel 13

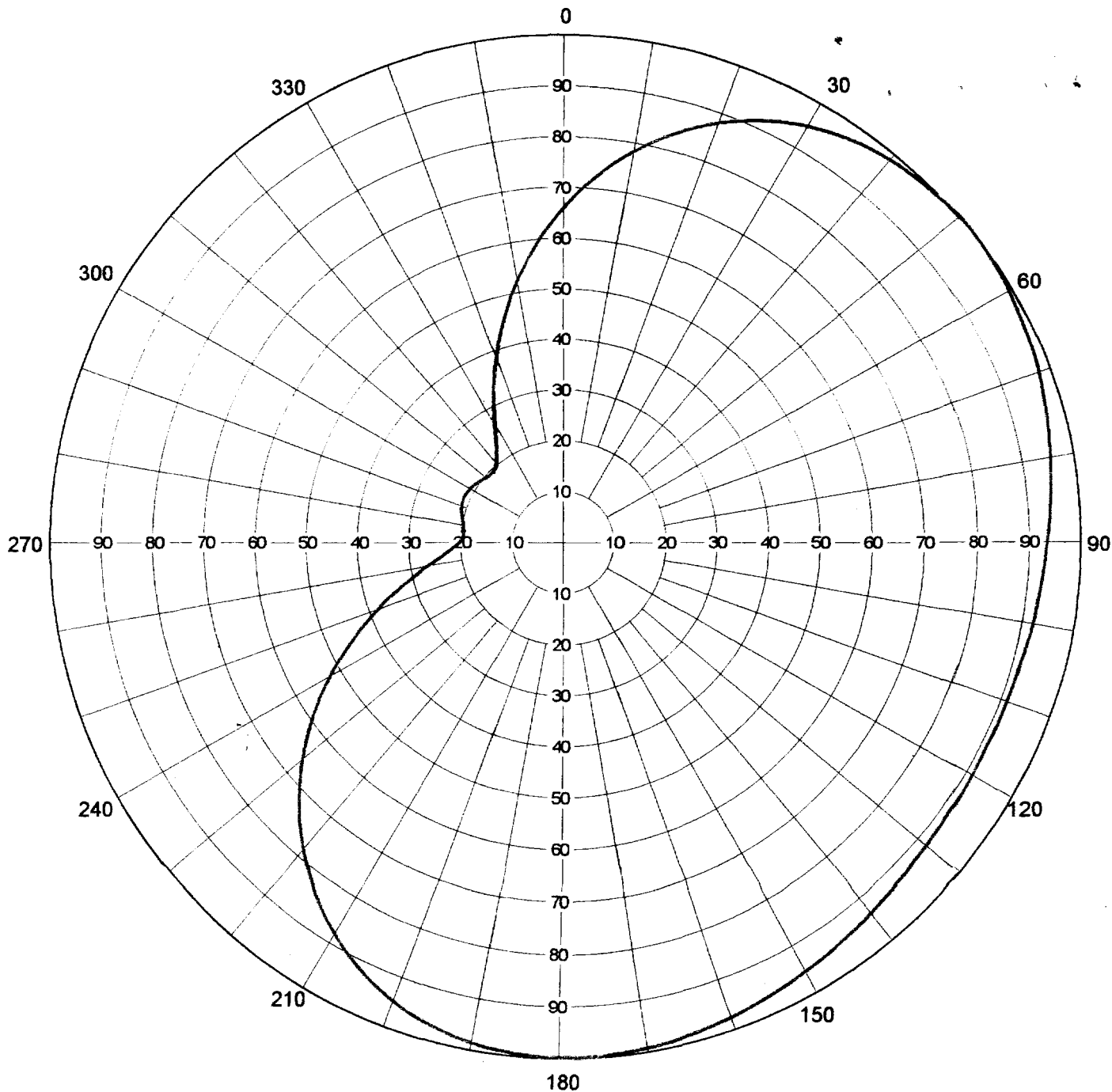
AZIMUTH PATTERN

RMS Gain at Main Lobe
Calculated / Measured

1.70 (2.30 dB)
Calculated

Frequency
Drawing #

213 MHz
THV-C170



Remarks:

EXHIBIT 4



Date **30 Jan 2001**
Call Letters **WVAN-DT** Channel **13**
Location **SAVANNAH**
Customer **GPTC**
Antenna Type **THV-13A13-R C170**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **THV-C170**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.659	45	0.996	90	0.936	135	0.928	180	1.000	225	0.723	270	0.202	315	0.193
1	0.672	46	0.997	91	0.935	136	0.930	181	0.999	226	0.710	271	0.199	316	0.194
2	0.685	47	0.998	92	0.933	137	0.931	182	0.999	227	0.698	272	0.197	317	0.195
3	0.698	48	0.999	93	0.931	138	0.933	183	0.998	228	0.685	273	0.195	318	0.197
4	0.710	49	1.000	94	0.930	139	0.935	184	0.997	229	0.672	274	0.194	319	0.199
5	0.723	50	1.000	95	0.928	140	0.936	185	0.996	230	0.659	275	0.193	320	0.202
6	0.735	51	1.000	96	0.927	141	0.938	186	0.995	231	0.646	276	0.193	321	0.205
7	0.747	52	1.000	97	0.925	142	0.940	187	0.993	232	0.632	277	0.193	322	0.210
8	0.759	53	1.000	98	0.924	143	0.942	188	0.991	233	0.618	278	0.194	323	0.214
9	0.771	54	0.999	99	0.923	144	0.944	189	0.989	234	0.605	279	0.195	324	0.220
10	0.782	55	0.999	100	0.921	145	0.946	190	0.987	235	0.591	280	0.196	325	0.226
11	0.793	56	0.998	101	0.920	146	0.948	191	0.984	236	0.577	281	0.197	326	0.233
12	0.804	57	0.997	102	0.919	147	0.950	192	0.981	237	0.563	282	0.199	327	0.240
13	0.814	58	0.996	103	0.918	148	0.952	193	0.978	238	0.549	283	0.200	328	0.249
14	0.824	59	0.995	104	0.917	149	0.954	194	0.974	239	0.535	284	0.202	329	0.257
15	0.834	60	0.994	105	0.917	150	0.956	195	0.971	240	0.521	285	0.203	330	0.267
16	0.844	61	0.993	106	0.916	151	0.958	196	0.967	241	0.507	286	0.205	331	0.276
17	0.853	62	0.991	107	0.915	152	0.960	197	0.963	242	0.492	287	0.206	332	0.287
18	0.862	63	0.990	108	0.915	153	0.963	198	0.958	243	0.478	288	0.207	333	0.297
19	0.871	64	0.988	109	0.914	154	0.965	199	0.953	244	0.464	289	0.209	334	0.309
20	0.880	65	0.987	110	0.914	155	0.967	200	0.948	245	0.450	290	0.210	335	0.320
21	0.888	66	0.985	111	0.913	156	0.969	201	0.943	246	0.437	291	0.211	336	0.332
22	0.896	67	0.983	112	0.913	157	0.971	202	0.937	247	0.423	292	0.211	337	0.344
23	0.904	68	0.981	113	0.913	158	0.973	203	0.931	248	0.409	293	0.212	338	0.357
24	0.911	69	0.979	114	0.913	159	0.975	204	0.924	249	0.396	294	0.212	339	0.369
25	0.918	70	0.977	115	0.912	160	0.977	205	0.918	250	0.383	295	0.212	340	0.383
26	0.924	71	0.975	116	0.913	161	0.979	206	0.911	251	0.369	296	0.212	341	0.396
27	0.931	72	0.973	117	0.913	162	0.981	207	0.904	252	0.357	297	0.212	342	0.409
28	0.937	73	0.971	118	0.913	163	0.983	208	0.896	253	0.344	298	0.211	343	0.423
29	0.943	74	0.969	119	0.913	164	0.985	209	0.888	254	0.332	299	0.211	344	0.437
30	0.948	75	0.967	120	0.914	165	0.987	210	0.880	255	0.320	300	0.210	345	0.450
31	0.953	76	0.965	121	0.914	166	0.988	211	0.871	256	0.309	301	0.209	346	0.464
32	0.958	77	0.963	122	0.915	167	0.990	212	0.862	257	0.297	302	0.207	347	0.478
33	0.963	78	0.960	123	0.915	168	0.991	213	0.853	258	0.287	303	0.206	348	0.492
34	0.967	79	0.958	124	0.916	169	0.993	214	0.844	259	0.276	304	0.205	349	0.507
35	0.971	80	0.956	125	0.917	170	0.994	215	0.834	260	0.267	305	0.203	350	0.521
36	0.974	81	0.954	126	0.917	171	0.995	216	0.824	261	0.257	306	0.202	351	0.535
37	0.978	82	0.952	127	0.918	172	0.996	217	0.814	262	0.249	307	0.200	352	0.549
38	0.981	83	0.950	128	0.919	173	0.997	218	0.804	263	0.240	308	0.199	353	0.563
39	0.984	84	0.948	129	0.920	174	0.998	219	0.793	264	0.233	309	0.197	354	0.577
40	0.987	85	0.946	130	0.921	175	0.999	220	0.782	265	0.226	310	0.196	355	0.591
41	0.989	86	0.944	131	0.923	176	0.999	221	0.771	266	0.220	311	0.195	356	0.605
42	0.991	87	0.942	132	0.924	177	1.000	222	0.759	267	0.214	312	0.194	357	0.618
43	0.993	88	0.940	133	0.925	178	1.000	223	0.747	268	0.210	313	0.193	358	0.632
44	0.995	89	0.938	134	0.927	179	1.000	224	0.735	269	0.205	314	0.193	359	0.646

Remarks:

EXHIBIT 5

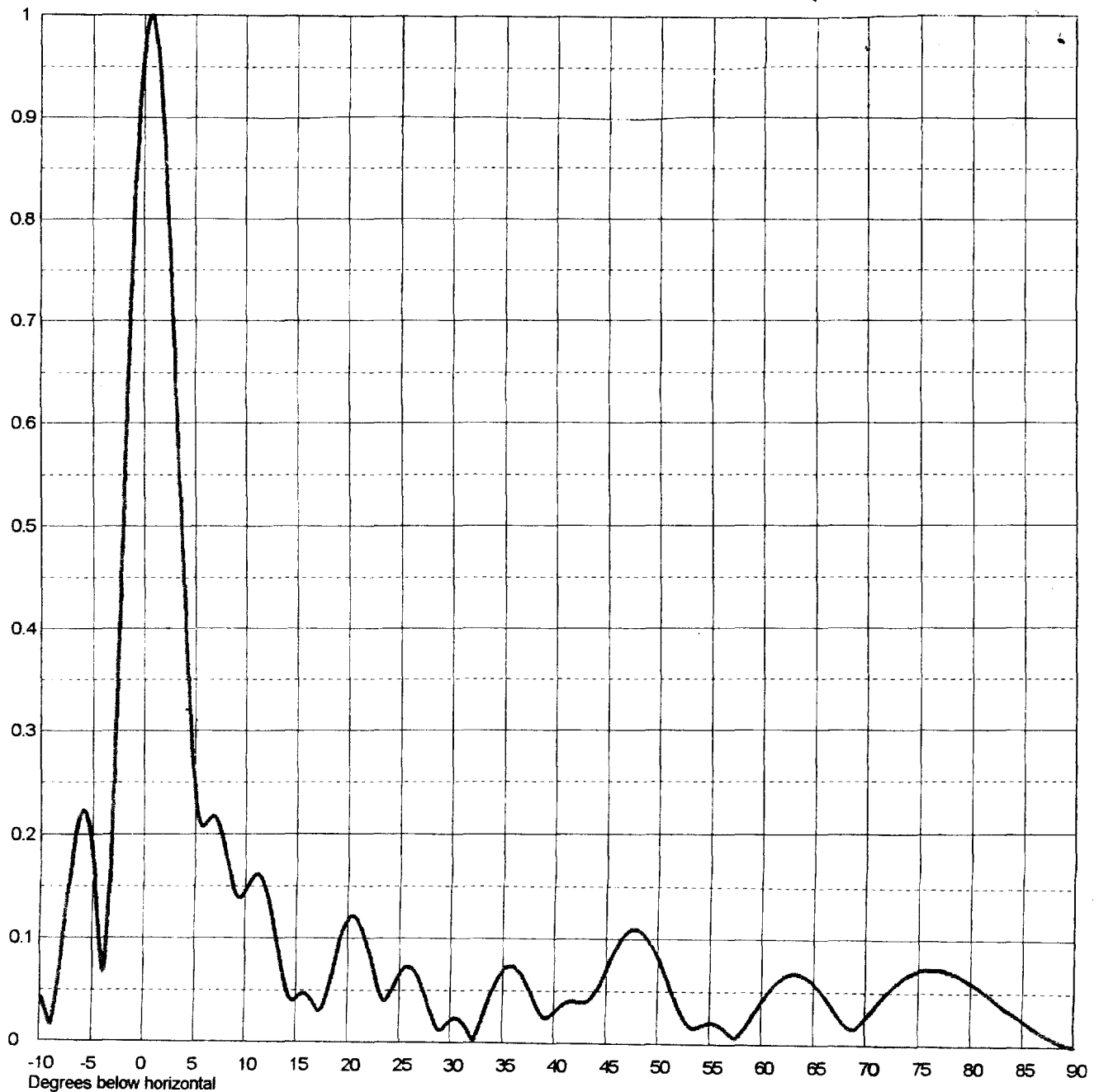
Dielectric

Exhibit No.
EXHIBIT 6

Date	30 Jan 2001	
Call Letters	WVAN-DT	Channel 13
Location	SAVANNAH	
Customer	GPTC	
Antenna Type	THV-13A13-R C170	

ELEVATION PATTERN

RMS Gain at Main Lobe	13.0 (11.14 dB)	Beam Tilt	0.70 Degrees
RMS Gain at Horizontal	12.0 (10.79 dB)	Frequency	213.00 MHz
Calculated / Measured	Calculated	Drawing #	13V130070-90



Remarks:

EXHIBIT 6



Date **30 Jan 2001**
Call Letters **WVAN-DT** Channel **13**
Location **SAVANNAH**
Customer **GPTC**
Antenna Type **THV-13A13-R C170**

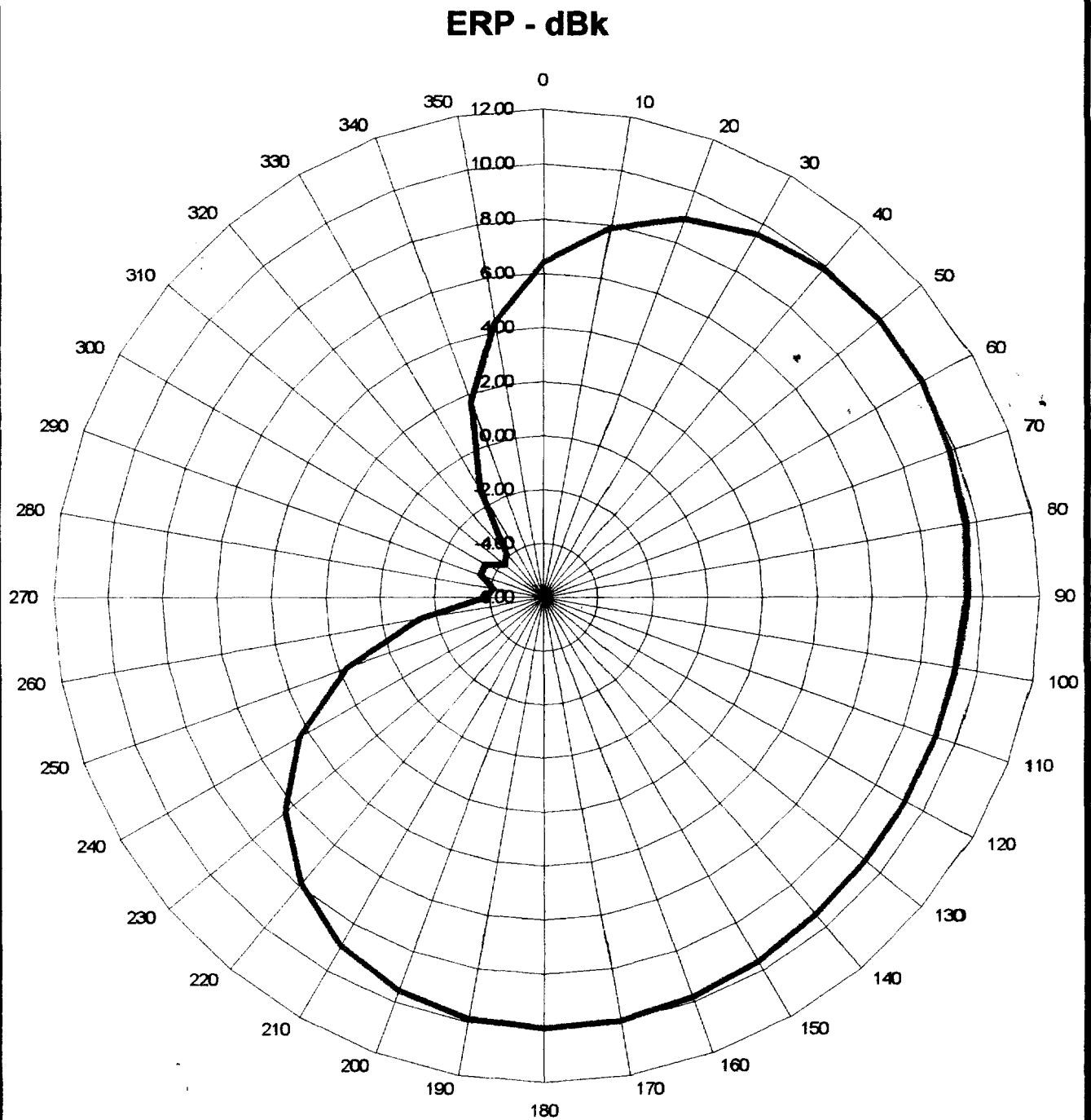
TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **13V130070-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.043	2.4	0.808	10.6	0.156	30.5	0.023	51.0	0.059	71.5	0.044
-9.5	0.031	2.6	0.764	10.8	0.159	31.0	0.021	51.5	0.046	72.0	0.050
-9.0	0.016	2.8	0.718	11.0	0.160	31.5	0.015	52.0	0.035	72.5	0.055
-8.5	0.041	3.0	0.670	11.5	0.159	32.0	0.005	52.5	0.025	73.0	0.059
-8.0	0.084	3.2	0.621	12.0	0.148	32.5	0.008	53.0	0.018	73.5	0.063
-7.5	0.131	3.4	0.571	12.5	0.129	33.0	0.022	53.5	0.015	74.0	0.066
-7.0	0.174	3.6	0.521	13.0	0.104	33.5	0.037	54.0	0.016	74.5	0.069
-6.5	0.206	3.8	0.472	13.5	0.077	34.0	0.050	54.5	0.018	75.0	0.071
-6.0	0.222	4.0	0.424	14.0	0.054	34.5	0.061	55.0	0.020	75.5	0.072
-5.5	0.215	4.2	0.380	14.5	0.041	35.0	0.069	55.5	0.019	76.0	0.072
-5.0	0.184	4.4	0.338	15.0	0.041	35.5	0.073	56.0	0.017	76.5	0.072
-4.5	0.129	4.6	0.302	15.5	0.045	36.0	0.073	56.5	0.014	77.0	0.072
-4.0	0.070	4.8	0.270	16.0	0.046	36.5	0.069	57.0	0.009	77.5	0.071
-3.5	0.115	5.0	0.245	16.5	0.040	37.0	0.062	57.5	0.006	78.0	0.069
-3.0	0.236	5.2	0.227	17.0	0.033	37.5	0.053	58.0	0.010	78.5	0.067
-2.8	0.291	5.4	0.215	17.5	0.032	38.0	0.042	58.5	0.016	79.0	0.065
-2.6	0.348	5.6	0.209	18.0	0.046	38.5	0.032	59.0	0.024	79.5	0.062
-2.4	0.406	5.8	0.207	18.5	0.066	39.0	0.025	59.5	0.033	80.0	0.059
-2.2	0.465	6.0	0.208	19.0	0.088	39.5	0.025	60.0	0.040	80.5	0.056
-2.0	0.523	6.2	0.211	19.5	0.105	40.0	0.029	60.5	0.047	81.0	0.053
-1.8	0.580	6.4	0.214	20.0	0.116	40.5	0.034	61.0	0.054	81.5	0.049
-1.6	0.636	6.6	0.216	20.5	0.121	41.0	0.038	61.5	0.059	82.0	0.046
-1.4	0.690	6.8	0.217	21.0	0.117	41.5	0.040	62.0	0.063	82.5	0.042
-1.2	0.741	7.0	0.216	21.5	0.106	42.0	0.040	62.5	0.066	83.0	0.038
-1.0	0.789	7.2	0.213	22.0	0.090	42.5	0.039	63.0	0.067	83.5	0.035
-0.8	0.833	7.4	0.208	22.5	0.070	43.0	0.039	63.5	0.067	84.0	0.031
-0.6	0.872	7.6	0.202	23.0	0.051	43.5	0.042	64.0	0.065	84.5	0.028
-0.4	0.907	7.8	0.194	23.5	0.041	44.0	0.049	64.5	0.062	85.0	0.024
-0.2	0.937	8.0	0.185	24.0	0.044	44.5	0.058	65.0	0.058	85.5	0.021
0.0	0.961	8.2	0.176	24.5	0.054	45.0	0.070	65.5	0.053	86.0	0.017
0.2	0.980	8.4	0.166	25.0	0.065	45.5	0.081	66.0	0.047	86.5	0.014
0.4	0.992	8.6	0.157	25.5	0.071	46.0	0.091	66.5	0.040	87.0	0.011
0.6	0.999	8.8	0.150	26.0	0.072	46.5	0.099	67.0	0.033	87.5	0.009
0.8	1.000	9.0	0.144	26.5	0.067	47.0	0.105	67.5	0.026	88.0	0.006
1.0	0.994	9.2	0.140	27.0	0.058	47.5	0.108	68.0	0.020	88.5	0.004
1.2	0.983	9.4	0.138	27.5	0.046	48.0	0.108	68.5	0.016	89.0	0.002
1.4	0.966	9.6	0.138	28.0	0.031	48.5	0.106	69.0	0.015	89.5	0.001
1.6	0.944	9.8	0.140	28.5	0.018	49.0	0.100	69.5	0.019	90.0	0.000
1.8	0.917	10.0	0.144	29.0	0.012	49.5	0.092	70.0	0.025		
2.0	0.884	10.2	0.148	29.5	0.016	50.0	0.082	70.5	0.031		
2.2	0.848	10.4	0.152	30.0	0.021	50.5	0.071	71.0	0.038		

Remarks:

EXHIBIT 7



**DIELECTRIC MODEL THV-13A13-R C170
DIRECTIONAL ANTENNA (CARDIOID)
MAIN BEAM MAXIMUM ORIENTED AT 115°
0.75 DEGREES ELECTRICAL BEAM TILT
MAXIMUM ANTENNA GAIN IN BEAM MAXIMUM 13.44 dB**

KESSLER & GEHMAN
TELECOMMUNICATIONS CONSULTING ENGINEERS
507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

**WVAN-DT CHANNEL 13
SAVANNAH, GEORGIA**

20010130

EXHIBIT 8

WVAN-DT CHANNEL 13

SAVANNAH, GEORGIA

TABULATION OF RELATIVE FIELDS FOR PROPOSED DIRECTIONAL ANTENNA

<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>	<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>
N000°E	0.659	N180°E	1.000
N010°E	0.782	N190°E	0.987
N020°E	0.880	N200°E	0.948
N030°E	0.948	N210°E	0.880
N040°E	0.987	N220°E	0.782
N050°E	1.000	N230°E	0.659
N060°E	0.994	N240°E	0.521
N070°E	0.977	N250°E	0.383
N080°E	0.956	N260°E	0.267
N090°E	0.936	N270°E	0.202
N100°E	0.921	N280°E	0.196
N110°E	0.914	N290°E	0.210
N120°E	0.914	N300°E	0.210
N130°E	0.921	N310°E	0.196
N140°E	0.936	N320°E	0.202
N150°E	0.956	N330°E	0.267
N160°E	0.977	N340°E	0.383
N170°E	0.994	N350°E	0.521

MINIMUM OF 0.193 AT N275°E AND N315°E

MAXIMA OF 1.000 AT N50°E AND N180°E

KESSLER & GEHMAN

TELECOMMUNICATIONS CONSULTING ENGINEERS

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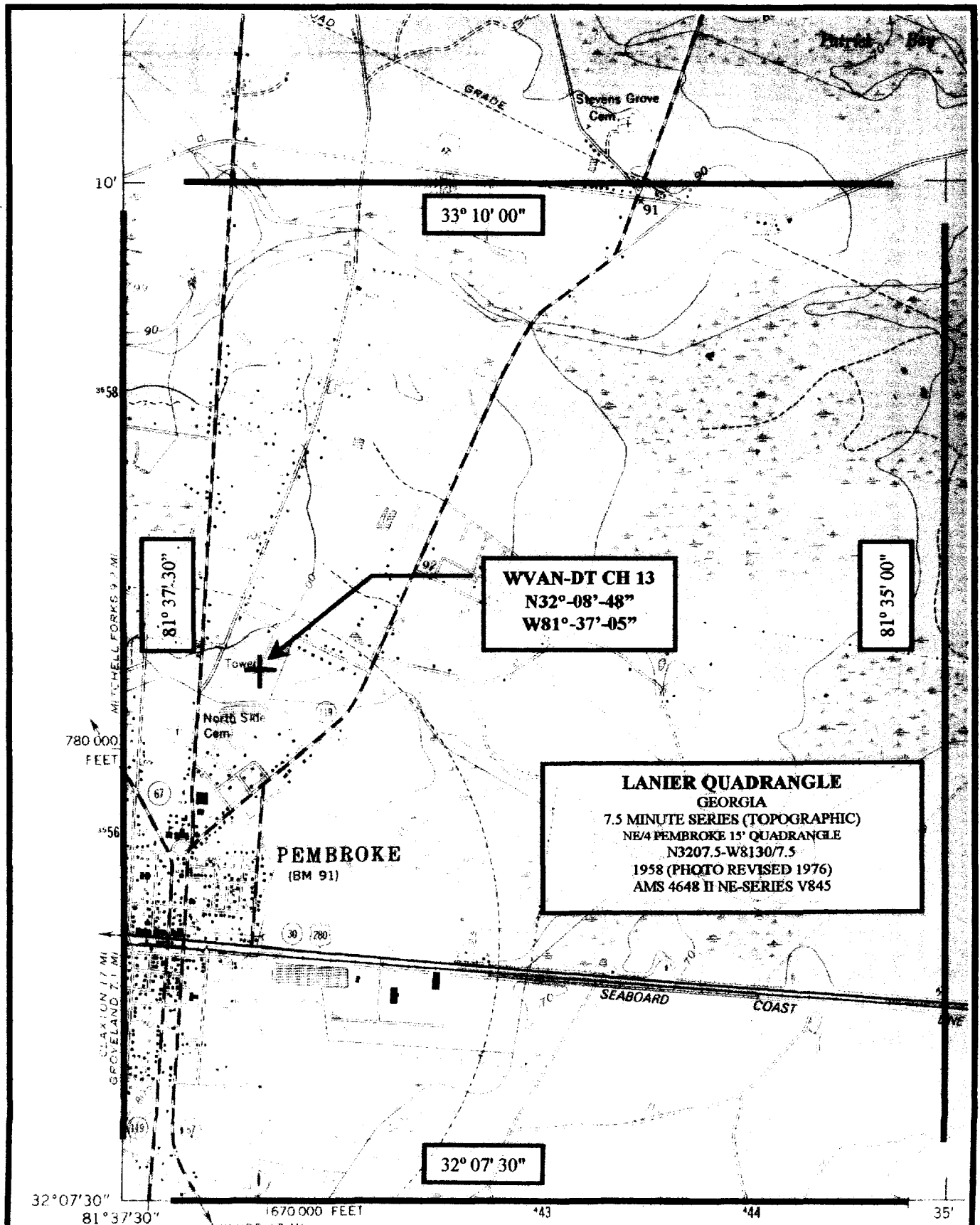
Gainesville, Florida 32607

WVAN-DT CHANNEL 13

SAVANNAH, GEORGIA

20010130

EXHIBIT 9



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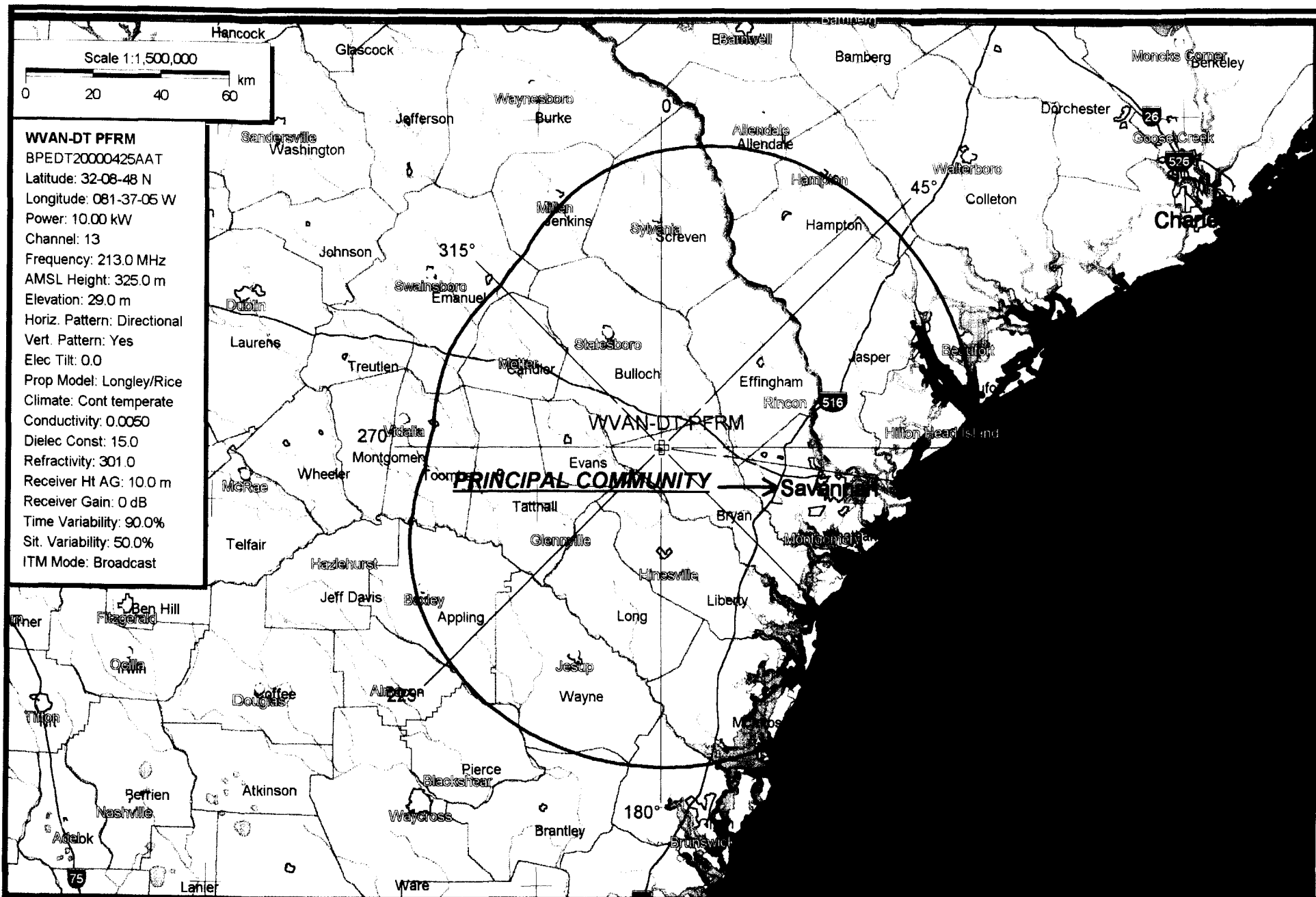
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Gainesville, Florida 32607

WVAN-DT CHANNEL 13

SAVANNAH, GEORGIA

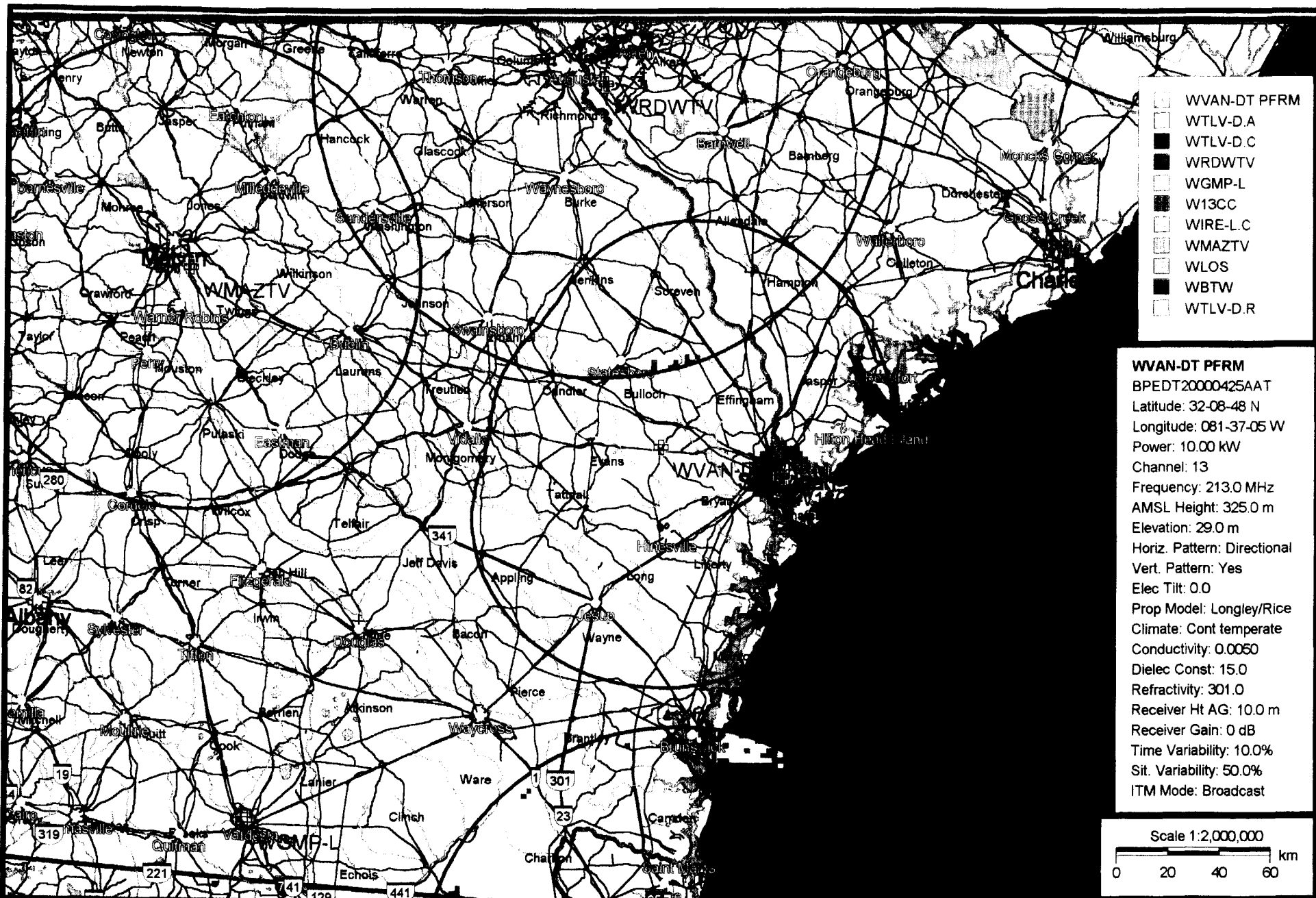
20010130

EXHIBIT 10



KESSLER & GEHMAN
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 Gainesville, Florida 32607

WVAN-DT CHANNEL 13
SAVANNAH, GA
 20010130
 EXHIBIT 11



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WVAN-DT CHANNEL 13

SAVANNAH, GA

20010129

EXHIBIT 12

V-Soft Communications Population Report

WVAN-DT PFRM (13) Savannah, GA
TV Outgoing Interference Study
Signal Resolution: 2 km
Consider NTSC Taboo: Yes
KWX error points are considered to be interference free coverage.
of radials computed for contours: 72
Contours calculated using 8 radial HAAT.
LR Profile Spacing Increment: 1.0 km
Masked interference points are being counted as interference.
Using NTSC lptv/translators D/U rules.

Study Date: 1/29/01

Stations which receive interference:

Call Letters	H Units	Population	Area (sq. km)
WTLV-D.A	12828	26002	665.18
WTLV-D.C	1719	3044	468.67
WRDWTW	93	234	45.32
W13CC	76689	183422	504.76
WMAZTV	299	723	140.08
WBTW	594	1402	32.44
WTLV-D.R	1243	1978	468.68

Totals for WVAN-DT PFRM

Total population to which interference is caused: 216805

Total number of housing units to which interference is caused: 93465

	Housing Units	Population
Florida		
Alachua County		
WTLV-D.A	1,831	3,971
WTLV-D.C	2	2
WTLV-D.R	1	0
Bradford County		
WTLV-D.C	3	4
WTLV-D.R	3	4
Putnam County		
WTLV-D.C	74	135
WTLV-D.R	2	3

	Housing Units	Population
Georgia		
Brantley County		
WTLV-D.A	73	202

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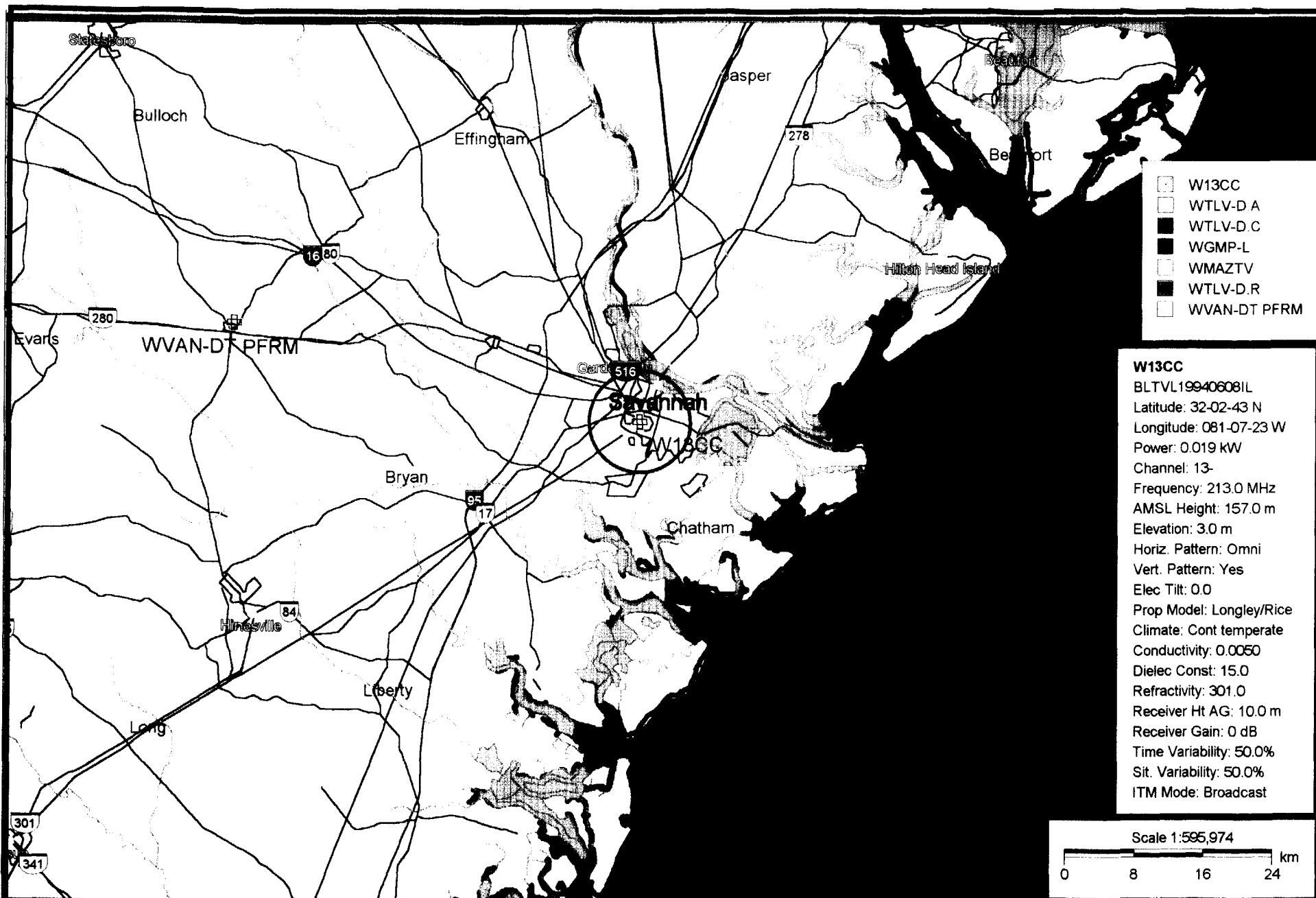
SAVANNAH, GA

20010129

EXHIBIT 12A

Bulloch County		
WRDWTW	74	188
Camden County		
WTLV-D.A	269	694
WTLV-D.C	317	826
WTLV-D.R	321	826
Charlton County		
WTLV-D.A	4	11
WTLV-D.C	26	63
WTLV-D.R	26	63
Chatham County		
W13CC	76,688	183,422
Dodge County		
WMAZTV	5	12
Effingham County		
WRDWTW	19	46
Glynn County		
WTLV-D.A	10,651	21,124
WTLV-D.C	1,297	2,014
WTLV-D.R	890	1,082
Johnson County		
WMAZTV	180	449
Laurens County		
WMAZTV	84	192
Washington County		
WMAZTV	29	65
Wheeler County		
WMAZTV	1	5

	Housing Units	Population
South Carolina		
Clarendon County		
WBTW	228	279
Jasper County		
W13CC	1	0
Kershaw County		
WBTW	49	161
Sumter County		
WBTW	317	962



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EXHIBIT 13